

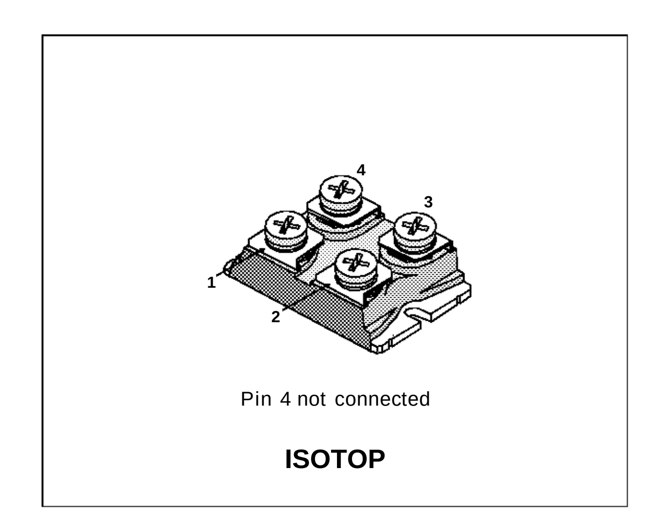
BUV98V

NPN TRANSISTOR POWER MODULE

- HIGH CURRENT POWER BIPOLAR MODULE
- VERY LOW R_{th} JUNCTION CASE
- SPECIFIED ACCIDENTAL OVERLOAD AREAS
- ISOLATED CASE (2500V RMS)
- EASY TO MOUNT
- LOW INTERNAL PARASITIC INDUCTANCE

INDUSTRIAL APPLICATIONS:

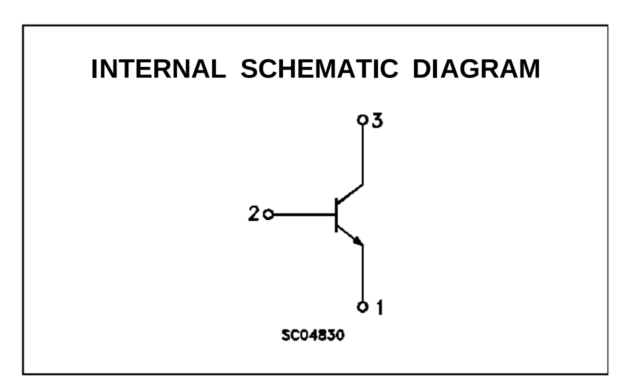
- MOTOR CONTROL
- SMPS & UPS
- WELDING EQUIPMENT



Pin 4 not connected

ISOTOP

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-Emitter Voltage (V_{BE} = -5 V)	850	V
$V_{CEO(sus)}$	Collector-Emitter Voltage (I_B = 0)	450	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7	V
I_C	Collector Current	30	A
I_{CM}	Collector Peak Current (t_p = 10 ms)	60	A
I_B	Base Current	8	A
I_{BM}	Base Peak Current (t_p = 10 ms)	30	A
P_{tot}	Total Dissipation at T_c = 25 ^oC	150	W
T_{stg}	Storage Temperature	-55 to 150	^oC
T_j	Max. Operating Junction Temperature	150	^oC
V_{ISO}	Insulation Withstand Voltage (AC-RMS)	2500	V

THERMAL DATA

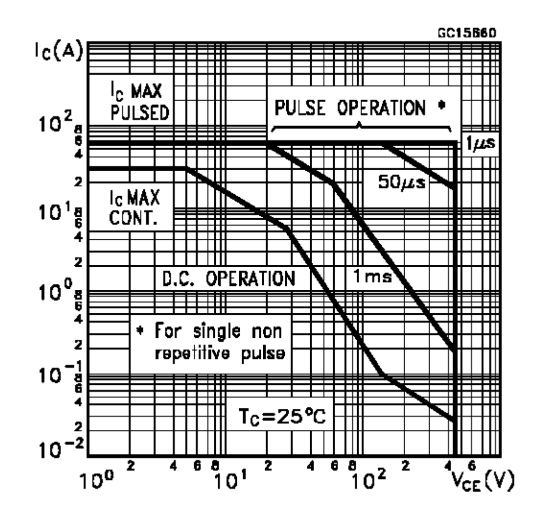
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	0.83	$^oC/W$
$R_{thc\text{-}h}$	Thermal Resistance Case-heatsink With Conductive Grease Applied	Max	0.05	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

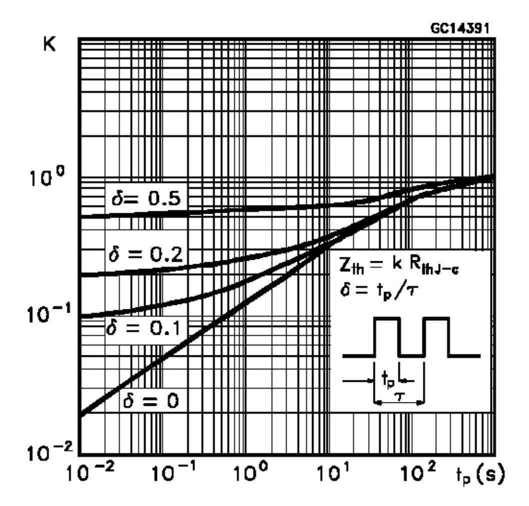
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current (R_{BE} = 5 Ω)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ T_j = 100 ^oC			1 8	mA mA
I_{CEV}	Collector Cut-off Current (V_{BE} = -5V)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ T_j = 100 ^oC			0.4 4	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(SUS)}$*	Collector-Emitter Sustaining Voltage	I_C = 0.2 A L = 25 mH V_{clamp} = 450 V	450			V
h_{FE}*	DC Current Gain	I_C = 24 A V_{CE} = 5 V		9		
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 20 A I_B = 4 A I_C = 30 A I_B = 8 A			1.5 3.5	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 20 A I_B = 4 A			1.6	V
di_C/dt	Rate of Rise of On-state Collector	V_{CC} = 300 V R_C = 0 t_p = 3 μs I_{B1} = 6 A T_j = 100 ^oC	100			A/μs
V_{CE}(3 μs)	Collector-Emitter Dynamic Voltage	V_{CC} = 300 V R_C = 15 Ω I_{B1} = 6 A T_j = 100 ^oC			8	V
V_{CE}(5 μs)	Collector-Emitter Dynamic Voltage	V_{CC} = 300 V R_C = 15 Ω I_{B1} = 6 A T_j = 100 ^oC			4	V
t_s t_f	Storage Time Fall Time	I_C = 20 A V_{CC} = 50 V V_{BB} = -5 V L_B = 1.5 μH V_{clamp} = 300 V I_{B1} = 4 A L = 750 μH T_j = 100 ^oC			5 0.4	μs μs
V_{CEW}	Maximum Collector Emitter Voltage Without Snubber	I_{CWoff} = 30 A I_{B1} = 6 A V_{BB} = -5 V V_{CC} = 50 V L = 750 μH L_B = 15 μH T_j = 125 ^oC	350			V

∗ Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

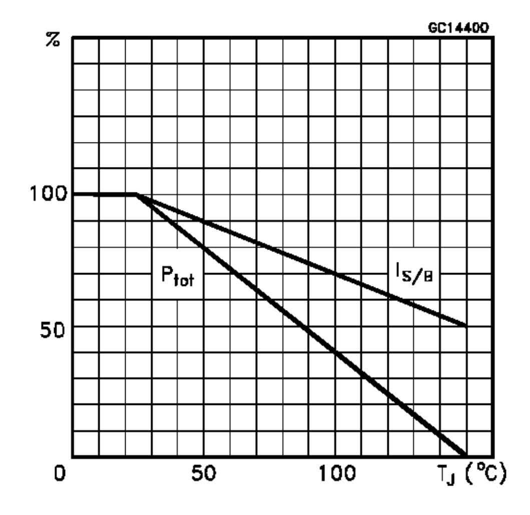
Safe Operating Areas



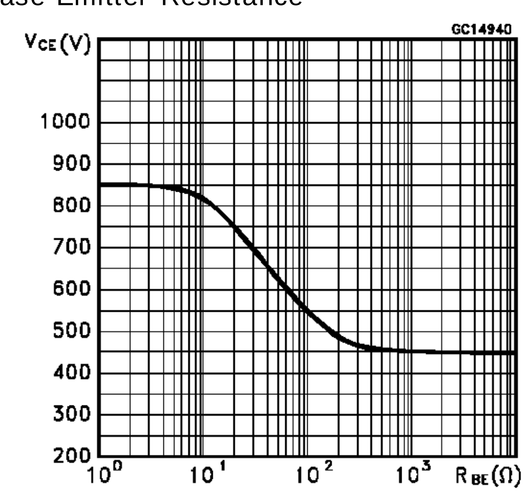
Thermal Impedance



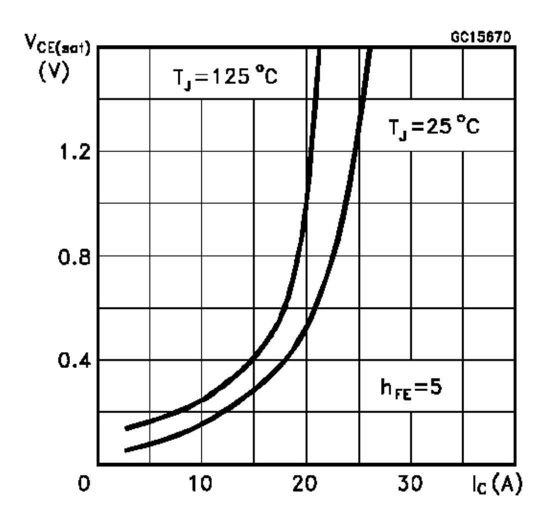
Derating Curve



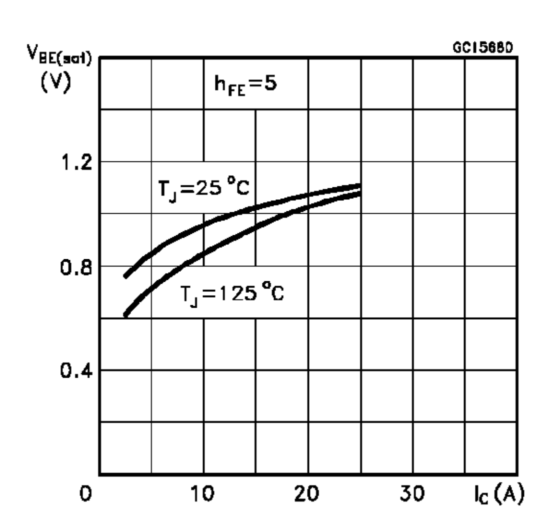
Collector-Emitter Voltage Versus Base-Emitter Resistance



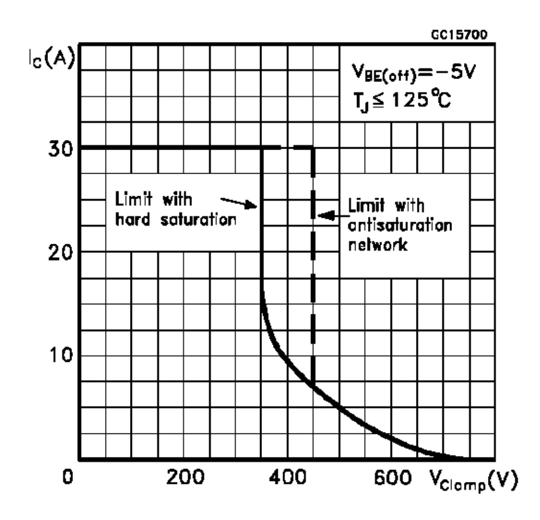
Collector-Emitter Saturation Voltage



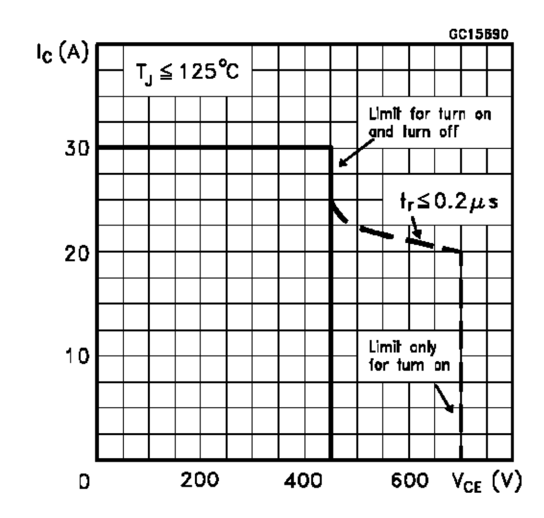
Base-Emitter Saturation Voltage



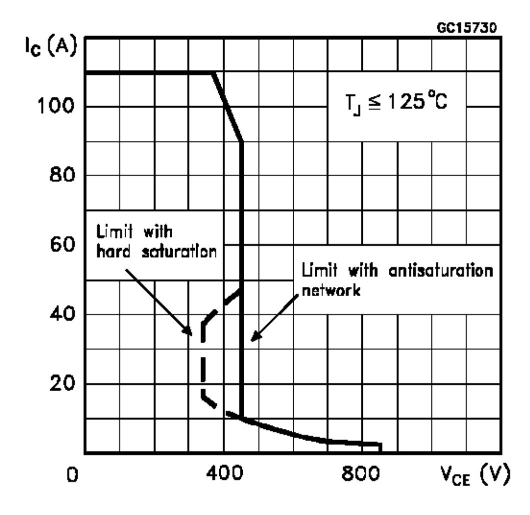
Reverse Biased SOA



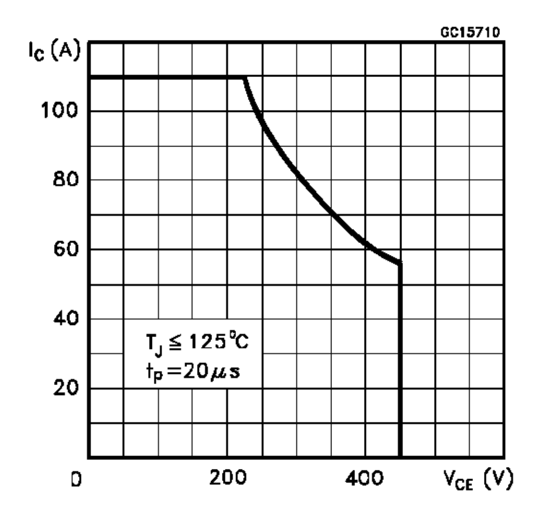
Forward Biased SOA



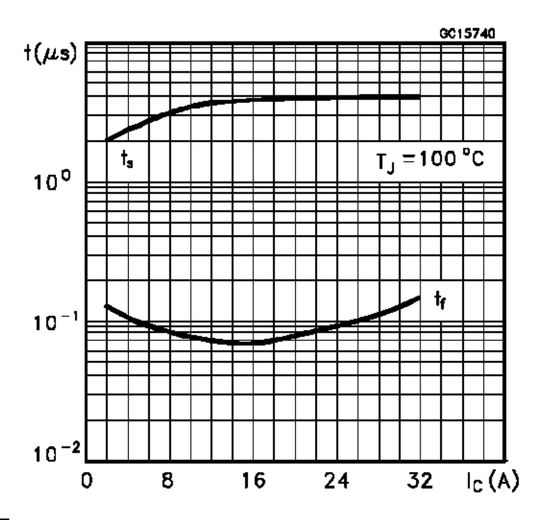
Reverse Biased AOA



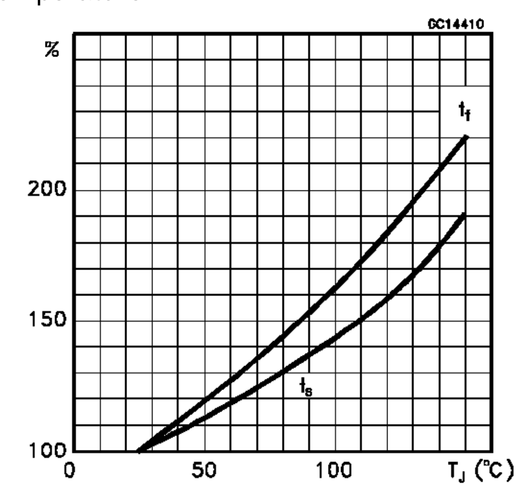
Forward Biased AOA



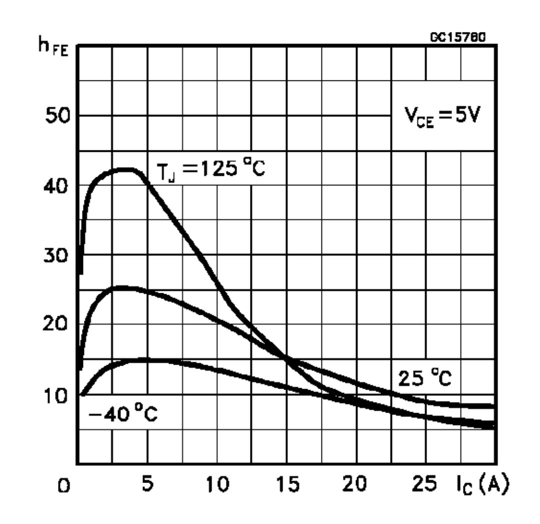
Switching Times Inductive Load



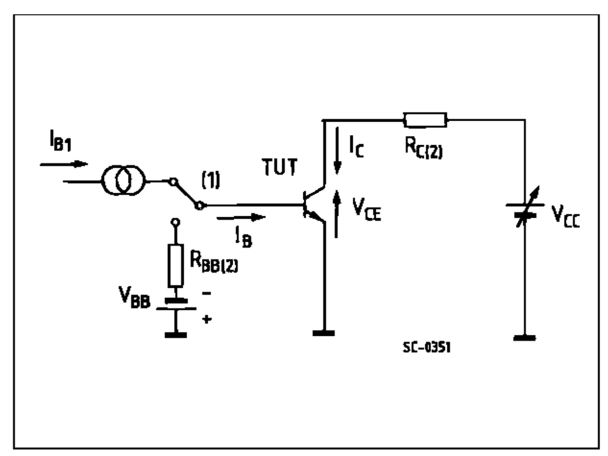
Switching Times Inductive Load Versus Temperature



DC Current Gain

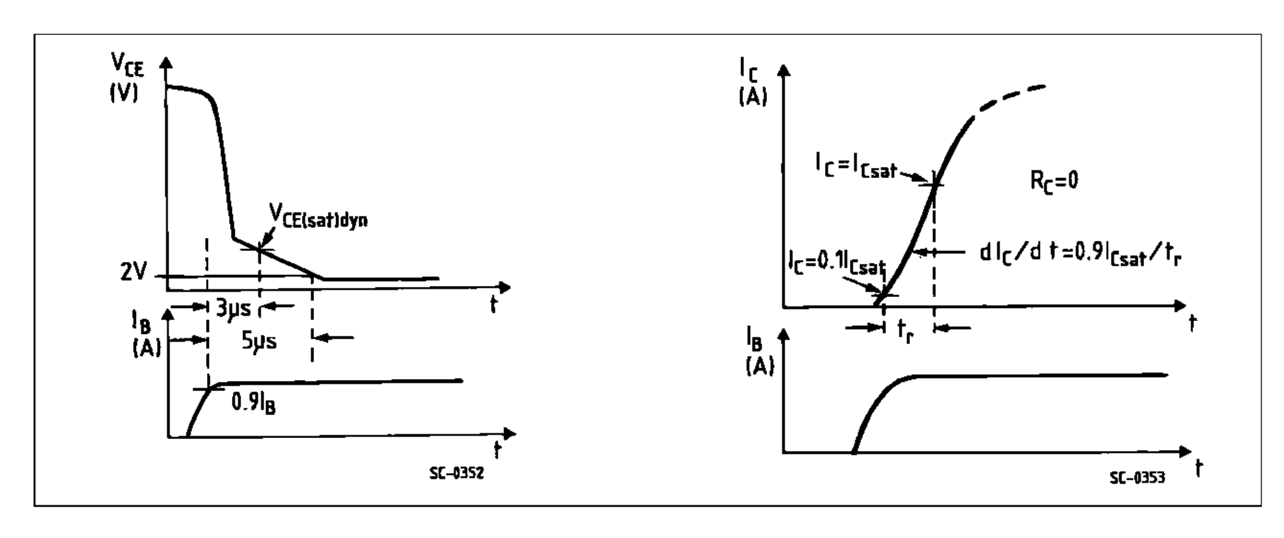


Turn-on Switching Test Circuit

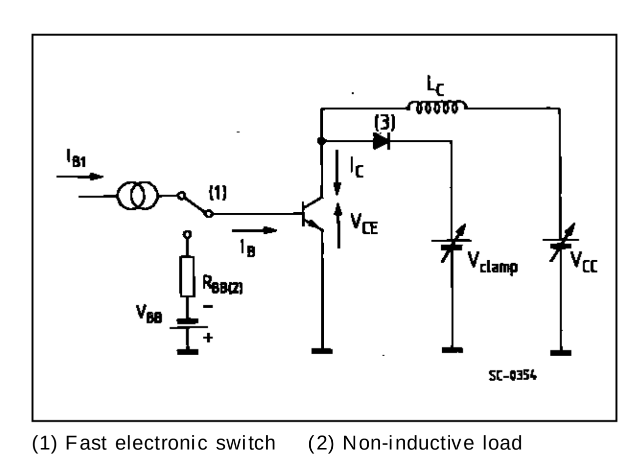


(1) Fast electronic switch (2) Non-inductive load

Turn-on Switching Waveforms

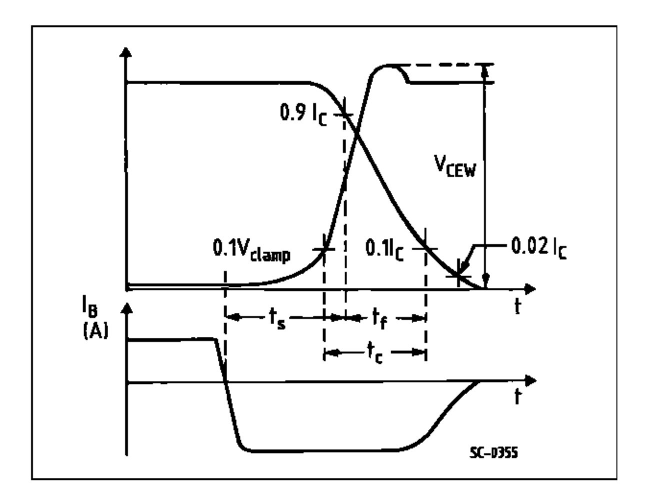


Turn-off Switching Test Circuit



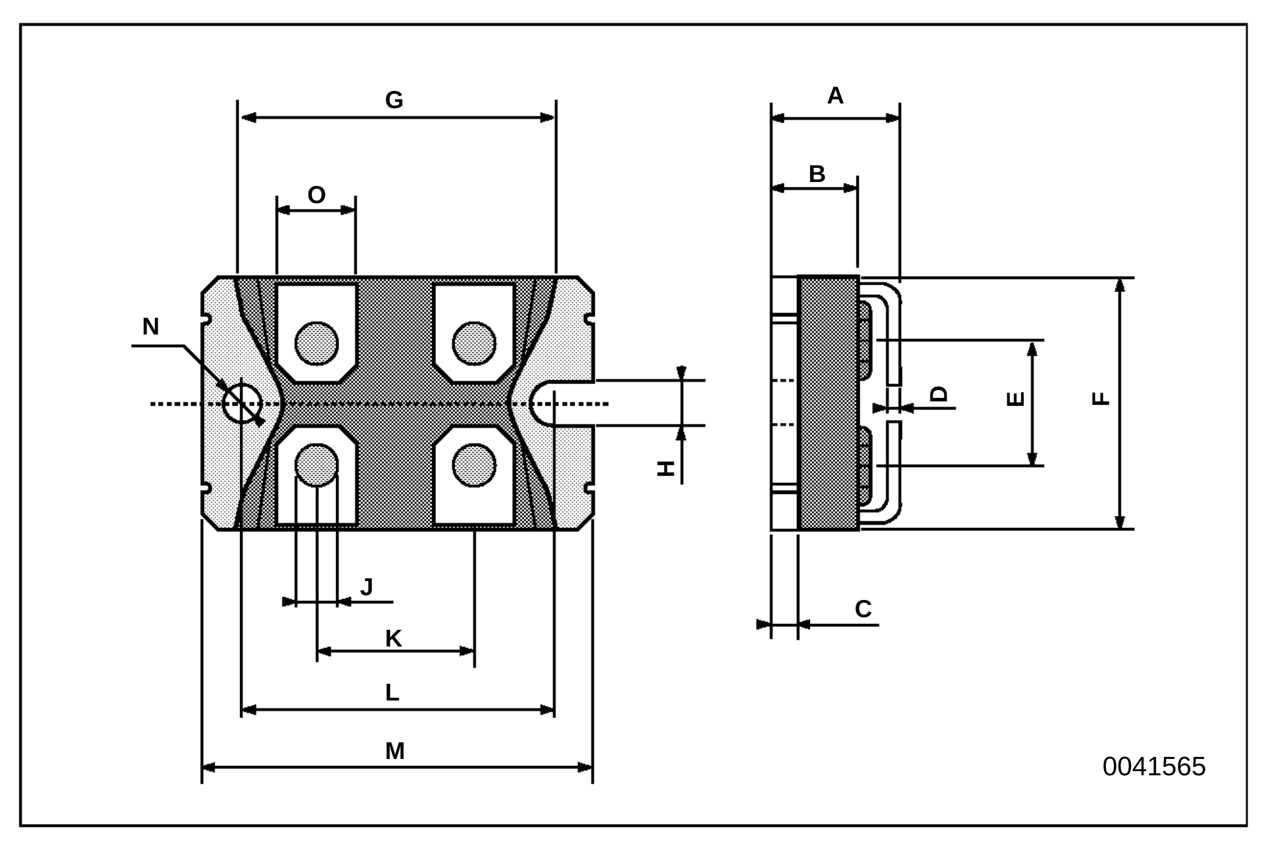
(1) Fast electronic switch (2) Non-inductive load
(3) Fast recovery rectifier

Turn-off Switching Waveforms



ISOTOP MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.8		12.2	0.466		0.480
B	8.9		9.1	0.350		0.358
C	1.95		2.05	0.076		0.080
D	0.75		0.85	0.029		0.033
E	12.6		12.8	0.496		0.503
F	25.15		25.5	0.990		1.003
G	31.5		31.7	1.240		1.248
H	4			0.157		
J	4.1		4.3	0.161		0.169
K	14.9		15.1	0.586		0.594
L	30.1		30.3	1.185		1.193
M	37.8		38.2	1.488		1.503
N	4			0.157		
O	7.8		8.2	0.307		0.322
P	5.5			0.216		




SGS-THOMSON
MICROELECTRONICS